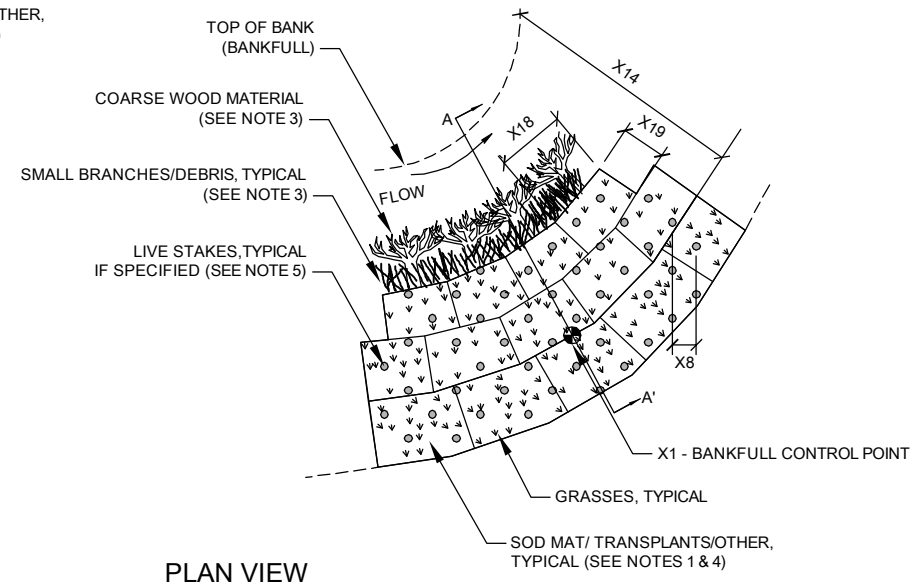


PHOTO: TOE WOOD WITH SOD MATS



THIS FIGURE IS ONLY MEANT TO DEFINE THE MINIMUM INFORMATION REQUIRED BY THE CITY OF CHARLOTTE TO BE INCLUDED IN A DETAIL FOR THIS TYPE OF TECHNIQUE.
THIS FIGURE IS NOT MEANT TO REPRESENT A STANDARD DESIGN METHOD FOR THIS TYPE OF TECHNIQUE AND SHALL NOT BE USED AS SUCH.

NOT TO SCALE



CHARLOTTE-MECKLENBURG
STORM WATER SERVICES
GENERIC DETAIL REQUIREMENTS

TOE WOOD

DRAFT - NOT TO BE USED FOR CONSTRUCTION

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NOTES:

1. TOE WOOD IS A STREAM BANK REPAIR/REVTMENT COMPRISED OF:
 - A. LOGS AND OTHER WOODY BRANCH MATERIALS USED TO FORM THE TOE OF BANK.
 - B. STACKED SOD MATS, TRANSPLANTS, AND/OR OTHER SOIL BIOENGINEERING STABILIZATION METHOD USED TO FORM THE STREAM BANK.
2. AN ELEVATION CONTROL POINT SHALL BE DESIGNATED AT BANKFULL STAGE. SURVEY OF CONTROL POINTS SHALL BE REQUIRED TO ESTABLISH THAT TOE WOOD INSTALLATION IS ACCURATE TO WITHIN THE TOLERANCE SPECIFIED BY THE DESIGNER.
3. THE CONTRACTOR SHALL USE COARSE WOODY MATERIAL SUCH AS LOGS, TRUNKS WITH ROOTS, BRANCHES, AND WOODY DEBRIS, IDEALLY COLLECTED FROM ON-SITE SOURCES (SUCH AS MATERIAL CUT FOR PROJECT ACCESS), TO FORM THE TOE OF THE STREAM BANK. THE DESIGNER SHALL SPECIFY ALL DIMENSIONS OF WOODY MATERIAL.
4. THE STREAM BANK ABOVE THE TOE WOOD SHALL BE FORMED FROM STACKED SOD MATS, TRANSPLANTS COLLECTED FROM HEALTHY ON-SITE SOURCES, AND/OR OTHER SOIL BIOENGINEERING STABILIZATION METHODS. PLANT SPECIES SHALL BE DESIGNATED BY THE DESIGNER. SPECIFIC INFORMATION REGARDING THE STREAM BANK REPAIR METHOD ABOVE TOE WOOD SHALL BE ADDED TO THIS DETAIL OR DETAILED SEPARATELY AND REFERENCED HEREIN. STACKED SOD MATS ARE USED IN THIS EXAMPLE.
5. LIVE STAKES IF SPECIFIED, SHALL BE OF THE SIZE SPECIFIED BY THE DESIGNER AND PLACED IN ACCORDANCE WITH THE PATTERN AND SPACING DESIGNATED BY THE DESIGNER. ADDITIONAL INFORMATION REGARDING LIVE STAKING SHALL BE ADDED TO THIS DETAIL OR DETAILED SEPARATELY AND REFERENCED HEREIN. LIVE STAKES MAY BE INSTALLED AFTER CONSTRUCTION ACTIVITIES ARE COMPLETE.
6. IF SOD MATS ARE USED TO FORM THE STREAM BANKS ABOVE THE TOE WOOD, TWINE, AS SPECIFIED BY THE DESIGNER, MAY BE USED TO SECURE SOD MATS TO THE LIVE STAKES TO PREVENT FLOTATION OF SOD MATS DURING HIGH FLOWS PRIOR TO ROOT RE-ESTABLISHMENT. IF LIVE STAKES ARE NOT SPECIFIED, OTHER STAKES MAY BE USED TO SECURE SOD MATS. THE DESIGNER SHALL SPECIFY THE MATERIALS, SIZE AND SPACING OF SUCH STAKES AND INCLUDE THEM IN THIS DETAIL.
7. IF THE EXISTING TOP OF SLOPE IS HIGHER THAN BANKFULL STAGE, ADDITIONAL STABILIZATION ACTIVITIES ABOVE INSTALLATION OF THE STACKED SOD MATS AND/OR TRANSPLANTS SHALL BE ADDED TO THIS DETAIL OR DETAILED SEPARATELY AND REFERENCED HEREIN.

DIMENSIONS (VALUES TO BE PROVIDED BY DESIGNER)			
VARIABLE	VALUES	TYPICAL UNIT	DESCRIPTION
X1		FT. (NAVD)	BANKFULL CONTROL POINT ELEVATION
X2		FT.	HEIGHT OF STREAM BANK REPAIR
X3		IN. OR FT.	TOE WOOD HEIGHT
X4		IN. OR FT.	HEIGHT OF STREAM BANK REPAIR ABOVE TOE WOOD
X5		IN. OR FT.	HEIGHT OF SLOPE STABILIZATION
X6		IN. OR FT.	SOD MAT THICKNESS
X7		NONE	STREAM BANK REPAIR SLOPE RATIO (HORIZONTAL COMPONENT)
X8		IN. OR FT.	LIVE STAKE SPACING
X9		IN. OR FT.	LIVE STAKE LENGTH
X10		IN.	LIVE STAKE DIAMETER
X11		NONE	TOP OF STREAM BANK REPAIR SLOPE RATIO (HORIZONTAL COMPONENT)
X12		NONE	SLOPE STABILIZATION RATIO (HORIZONTAL COMPONENT)
X13		FT.	STREAM BED WIDTH
X14		FT.	BANKFULL WIDTH
X15		IN.	FOOTER LOG DIAMETER (MAX. AND MIN. IF APPLICABLE)
X16		IN.	COARSE WOODY DEBRIS DIAMETER (MAX. AND MIN. IF APPLICABLE)
X17		IN.	TOE WOOD RELATIONSHIP WITH APPROXIMATE BASE FLOW WATER LEVEL
X18		IN. OR FT.	SOD MAT LENGTH
X19		IN. OR FT.	SOD MAT WIDTH
X20		IN.	SOD MAT THICKNESS
X21		IN. OR FT.	DEPTH OF BASE FLOW

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